

AMENDMENTS TO THE SPECIFICATION

IN THE SPECIFICATION

Please amend the paragraph beginning at page 1, line 6 as follows:

The present invention relates to an antireflection film. More particularly, the present invention is concerned with an antireflection film comprising silica particles and at least one binder compound, wherein the silica particles are bound together through the at least one binder compound, and wherein the antireflection film has a silica particle content of 30 % by weight or ~~less~~ more, an arithmetic mean surface roughness (Ra) of not more than 2 nm and a surface silicon atom content of 10 atom % or more. The antireflection film of the present invention not only exhibits excellent antireflection performance, but also has excellent properties with respect to mechanical strength and abrasion resistance. Therefore, the antireflection film of the present invention is very advantageous for coating various optical substrates (such as lenses of eye-glass and display screens).

Please amend the paragraph beginning at page 9, line 4 as follows:

In this situation, the present inventors have made extensive and intensive studies with a view toward solving the above-mentioned problems accompanying the prior art. As a result, the present inventors have unexpectedly found that the above objective can be attained by an antireflection film comprising silica particles and at least one binder compound, wherein the silica particles are bound together through the at least one binder compound, and wherein the antireflection film has a silica particle content of 30 % by weight or ~~less~~ more, an arithmetic

mean surface roughness (Ra) of not more than 2 nm and a surface silicon atom content of 10 atom % or more. That is, it has surprising been found that the above-mentioned antireflection film not only exhibits excellent antireflection performance, but also has excellent properties with respect to mechanical strength and abrasion resistance. The present invention has been completed, based on this finding.

Please amend the paragraph beginning at page 25, line 18 (to page 36, line 19) as follows:

(1) Hydrolysable silanes, such as tetramethoxysilane, tetraethoxysilane, tetra(n-propoxy)silane, tetra(i-propoxy)silane, tetra(n-butoxy)silane, tetra-sec-butoxysilane, tetra-tert-butoxysilane, trimethoxysilane, triethoxysilane, methyltrimethoxysilane, methyltriethoxysilane, ethyltrimethoxysilane, ethyltriethoxysilane, propyltrimethoxysilane, propyltriethoxysilane, isobutyltriethoxysilane, cyclohexyltrimethoxysilane, phenyltrimethoxysilane, phenyltriethoxysilane, vinyltrimethoxysilane, vinyltriethoxysilane, allyltrimethoxysilane, allyltriethoxysilane, methyltri(n-propoxy)silane, methyltri(iso-propoxy)silane, methyltri(n-butoxy)silane, methyltri(sec-butoxy)silane, methyltri(tert-butoxy)silane, ethyltri(n-propoxy)silane, ethyltri(iso-propoxy)silane, ethyltri(n-butoxy)silane, ethyltri(sec-butoxy)silane, ethyltri(tert-butoxy)silane, n-propyltri(n-propoxy)silane, n-propyltri(iso-propoxy)silane, n-propyltri(n-butoxy)silane, n-propyltri(sec-butoxy)silane, n-propyltri(tert-butoxy)silane, i-propyltrimethoxysilane, i-propyltriethoxysilane, i-propyltri(n-propoxy)silane, i-propyltri(iso-propoxy)silane, i-propyltri(n-butoxy)silane, i-propyltri(sec-butoxy)silane, i-propyltri(tert-butoxy)silane, n-butyltrimethoxysilane, n-butyltriethoxysilane, n-butyltri(n-propoxy)silane, n-butyltri(iso-propoxy)silane,

n-butyltri(n-butoxy)silane, n-butyltri(sec-butoxy)silane, n-butyltri(tert-butoxy)silane,
 n-butyltriphenoxysilane, sec-butyltrimethoxysilane, sec-butyltri(n-propoxy)silane,
 sec-butyltri(iso-propoxy)silane, sec-butyltri(n-propoxy)silane, sec-butyltri(sec-propoxy)silane,
 sec-butyltri(tert-butoxy)silane, t-butyltrimethoxysilane, t-butyltriethoxysilane,
 t-butyltri(n-propoxy)silane, t-butyltri(iso-propoxy)silane, t-butyltri(n-butoxy)silane,
 t-butyltri(sec-butoxy)silane, t-butyltri(tert-butoxy)silane, phenyltri(n-propoxy)silane,
 phenyltri(iso-propoxy)silane, phenyltri(n-butoxysilane), phenyltri(sec-butoxy)silane,
 phenyltri(tert-butoxy)silane, dimethoxysilane, diethoxysilane, methyldimethoxysilane,
 methyldiethoxysilane, dimethyldimethoxysilane, dimethyldiethoxysilane,
 dimethyldi(n-propoxy)silane, dimethyldi(i-propoxy)silane, dimethyldi(n-butoxy)silane,
 dimethyldi(sec-butoxy)silane, dimethyldi(tert-butoxy)silane, diethyldimethoxysilane,
 diethyldiethoxysilane, diethyldi(n-propoxy)silane, diethyldi(i-propoxy)silane,
 diethyldi(n-butoxy)silane, diethyldi(sec-butoxy)silane, diethyldi(tert-butoxy)silane,
 diphenyldimethoxysilane, diphenyldiethoxysilane, diphenyldi(n-propoxy)silane,
 diphenyldi(i-propoxy)silane, diphenyldi(n-butoxy)silane, diphenyldi(sec-butoxy)silane,
 diphenyldi(tert-butoxy)silane, methylethyldimethoxysilane, methylethyldiethoxysilane,
 methylethyldi(n-propoxy)silane, methylethyldi(i-propoxy)silane, methylethyldi(n-butoxy)silane,
 methylethyldi(sec-butoxy)silane, methylethyldi(tert-butoxy)silane,
 methylpropyldimethoxysilane, methylpropyldiethoxysilane, methylpropyldi(n-propoxy)silane,
 methylpropyldi(i-propoxy)silane, methylpropyldi(n-butoxy)silane,
 methylpropyldi(sec-butoxy)silane, methylpropyldi(tert-butoxy)silane,
 methylphenyldimethoxysilane, methylphenyldiethoxysilane, methylphenyldi(n-propoxy)silane,

methylphenyldi(i-propoxy)silane, methylphenyldi(n-butoxy)silane,
methylphenyldi(sec-butoxy)silane, methylphenyldi(tert-butoxy)silane,
ethylphenyldimethoxysilane, ethylphenyldiethoxysilane, ethylphenyldi(n-propoxy)silane,
ethylphenyldi(i-propoxy)silane, ethylphenyldi(n-butoxy)silane, ethylphenyldi(sec-butoxy)silane,
ethylphenyldi(tert-butoxy)silane, methylvinyl dimethoxysilane, methylvinyl diethoxysilane,
methylvinyl di(n-propoxy)silane, methylvinyl di(i-propoxy)silane, methylvinyl di(n-butoxy)silane,
methylvinyl di(sec-butoxy)silane, methylvinyl di(tert-butoxy)silane, divinyl dimethoxysilane,
divinyl diethoxysilane, divinyl di(n-propoxy)silane, divinyl di(i-propoxy)silane,
divinyl di(n-butoxy)silane, divinyl di(sec-butoxy)silane, divinyl di(tert-butoxy)silane,
methoxysilane, ethoxysilane, methylmethoxysilane, methylethoxysilane, dimethylmethoxysilane,
dimethylethoxysilane, trimethylmethoxysilane, trimethylethoxysilane,
trimethyl(n-propoxy)silane, trimethyl(i-propoxy)silane, trimethyl(n-butoxy)silane,
trimethyl(sec-butoxy)silane, trimethyl(tert-butoxy)silane, triethylmethoxysilane,
triethylethoxysilane, triethyl(n-propoxy)silane, triethyl(i-propoxy)silane,
triethyl(n-butoxy)silane, triethyl(sec-butoxy)silane, triethyl(tert-butoxy)silane,
tripropylmethoxysilane, tripropylethoxysilane, tripropyl(n-propoxy)silane,
tripropyl(i-propoxy)silane, tripropyl(n-butoxy)silane, tripropyl(sec-butoxy)silane,
tripropyl(tert-butoxy)silane, triphenylmethoxysilane, triphenylethoxysilane,
triphenyl(n-propoxy)silane, triphenyl(i-propoxy)silane, triphenyl(n-butoxy)silane,
triphenyl(sec-butoxy)silane, triphenyl(tert-butoxy)silane, methyldiethylmethoxysilane,
methyldiethylethoxysilane, methyldiethyl(n-propoxy)silane, methyldiethyl(i-propoxy)silane,
methyldiethyl(n-butoxy)silane, methyldiethyl(sec-butoxy)silane,

methyldiethyl(tert-butoxy)silane, methyldipropylmethoxysilane, methyldipropylethoxysilane,
methyldipropyl(n-propoxy)silane, methyldipropyl(i-propoxy)silane,
methyldipropyl(n-butoxy)silane, methyldipropyl(sec-butoxy)silane,
methyldipropyl(tert-butoxy)silane, methyldiphenylmethoxysilane, methyldiphenylethoxysilane,
methyldiphenyl(n-propoxy)silane, methyldiphenyl(i-propoxy)silane,
methyldiphenyl(n-butoxy)silane, methyldiphenyl(sec-butoxy)silane,
methyldiphenyl(tert-butoxy)silane, ethyldimethylmethoxysilane, ethyldimethylethoxysilane,
ethyldimethyl(n-propoxy)silane, ethyldimethyl(i-propoxy)silane, ethyldimethyl(n-butoxy)silane,
ethyldimethyl(sec-butoxy)silane, ethyldimethyl(tert-butoxy)silane, ethyldipropylmethoxysilane,
ethyldipropylethoxysilane, ethyldipropyl(n-propoxy)silane, ethyldipropyl(i-propoxy)silane,
ethyldipropyl(n-butoxy)silane, ethyldipropyl(sec-butoxy)silane, ethyldipropyl(tert-butoxy)silane,
ethyldiphenylmethoxysilane, ethyldiphenylethoxysilane, ethyldiphenyl(n-propoxy)silane,
ethyldiphenyl(i-propoxy)silane, ethyldiphenyl(n-butoxy)silane, ethyldiphenyl(sec-butoxy)silane,
ethyldiphenyl(tert-butoxy)silane, propyldimethylmethoxysilane, propyldimethylethoxysilane,
propyldimethyl(n-propoxy)silane, propyldimethyl(i-propoxy)silane,
propyldimethyl(n-butoxy)silane, propyldimethyl(sec-butoxy)silane, propyldimethyl-
(tert-butoxy)silane, propyldiethylmethoxysilane, propyldiethylethoxysilane,
propyldiethyl(n-propoxy)silane, propyldiethyl(i-propoxy)silane, propyldiethyl(n-butoxy)silane,
propyldiethyl(sec-butoxy)silane, propyldiethyl(tert-butoxy)silane, propyldiphenylmethoxysilane,
propyldiphenylethoxysilane, propyldiphenyl(n-propoxy)silane, propyldiphenyl(i-propoxy)silane,
propyldiphenyl(n-butoxy)silane, propyldiphenyl(sec-butoxy)silane,
propyldiphenyl(tert-butoxy)silane, phenyldimethylmethoxysilane, phenyldimethylethoxysilane,

phenyldimethyl(n-propoxy)silane, phenyldimethyl(i-propoxy)silane,
phenyldimethyl(n-butoxy)silane, phenyldimethyl(sec-butoxy)silane,
phenyldimethyl(tert-butoxy)silane, phenyldiethylmethoxysilane, phenyldiethylethoxysilane,
phenyldiethyl(n-propoxy)silane, phenyldiethyl(i-propoxy)silane, phenyldiethyl(n-butoxy)silane,
phenyldiethyl(sec-butoxy)silane, phenyldiethyl(tert-butoxy)silane,
phenyldipropylmethoxysilane, phenyldipropylethoxysilane, phenyldipropyl(n-propoxy)silane,
phenyldipropyl(i-propoxy)silane, phenyldipropyl(n-butoxy)silane, phenyldipropyl-
(sec-butoxy)silane, phenyldipropyl(tert-butoxy)silane, trivinylmethoxysilane,
trivinylethoxysilane, trivinyl(n-propoxy)silane, trivinyl(i-propoxy)silane, trivinyl-
(n-butoxy)silane, trivinyl(sec-butoxy)silane, trivinyl(tert-butoxy)silane,
vinyl dimethylmethoxysilane, vinyl dimethylethoxysilane, vinyl dimethyl(n-propoxy)silane,
vinyl dimethyl(i-propoxy)silane, vinyl dimethyl(n-butoxy)silane,
vinyl dimethyl(sec-butoxy)silane, vinyl dimethyl(tert-butoxy)silane, vinyl diethylmethoxysilane,
vinyl diethylethoxysilane, vinyl diethyl(n-propoxy)silane, vinyl diethyl(i-propoxy)silane,
vinyl diethyl(n-butoxy)silane, vinyl diethyl(sec-butoxy)silane, vinyl diethyl(tert-butoxy)silane,
vinyl dipropylmethoxysilane, vinyl dipropylethoxysilane, vinyl dipropyl(n-propoxy)silane,
vinyl dipropyl(i-propoxy)silane, vinyl dipropyl(n-butoxy)silane, vinyl dipropyl(sec-butoxy)silane,
vinyl dipropyl(tert-butoxy)silane, bis(trimethoxysilyl)methane, bis(triethoxysilyl)methane,
bis(triphenoxysilyl)methane, bis(trimethoxysilyl)ethane, bis(triethoxysilyl)ethane,
bis(triphenoxysilyl)ethane, 1,3-bis(trimethoxysilyl)propane, 1,3-bis(triethoxysilyl)propane,
1,3-bis(triphenoxysilyl)propane, 1,4-bis(trimethoxysilyl)benzene, 1,4-bis(triethoxysilyl)benzene,
hexamethoxydisiloxane, hexaethoxydisiloxane, hexaphenoxydisiloxane,

1,1,1,3,3-pentamethoxy-3-methyldisiloxane,	1,1,1,3,3-pentaethoxy-3-methyldisiloxane,	
1,1,1,3,3-pentamethoxy-3-phenyldisiloxane,	1,1,1,3,3-pentaethoxy-3-phenyldisiloxane,	
1,1,3,3-tetramethoxy-1,3-dimethyldisiloxane,	1,1,3,3-tetraethoxy-1,3-dimethyldisiloxane,	
1,1,3,3-tetramethoxy-1,3-diphenyldisiloxane,	1,1,3,3-tetraethoxy-1,3-diphenyldisiloxane,	
1,1,3-trimethoxy-1,3,3-trimethyldisiloxane,	1,1,3-triethoxy-1,3,3-trimethyldisiloxane,	
1,1,3-trimethoxy-1,3,3-triphenyldisiloxane,	1,1,3-triethoxy-1,3,3-triphenyldisiloxane,	
1,3-dimethoxy-1,1,3,3-tetramethyldisiloxane,	1,3-diethoxy-1,1,3,3-tetramethyldisiloxane,	
1,3-dimethoxy-1,1,3,3-tetraphenyldisiloxane,	1,3-diethoxy-1,1,3,3-tetraphenyldisiloxane,	
3-dimethoxy-1,1,3,3-tetramethyldisiloxane	<u>1,3-dimethoxy-1,1,3,3-tetramethyldisiloxane,</u>	
1,3-diethoxy-1,1,3,3-tetramethyldisiloxane,	1,3-dimethoxy-1,1,3,3-tetraphenyldisiloxane,	
1,3-diethoxy-1,1,3,3-tetraphenyldisiloxane,	3-chloropropyltrimethoxysilane,	
3-chloropropyltriethoxysilane,	3-hydroxypropyltrimethoxysilane,	
3-hydroxypropyltriethoxysilane,	3-mercaptopropyltrimethoxysilane,	
3-mercaptopropyltriethoxysilane, trifluoropropyltrimethoxysilane, trifluoropropyltriethoxysilane,		
3-aminopropyltriethoxysilane,	3-aminopropyltrimethoxysilane,	
N-(2-aminoethyl)-3-aminopropyltriethoxysilane,		
N-(2-aminoethyl)-3-aminopropyltrimethoxysilane,	tetraacetoxysilane,	
tetrakis(trichloroacetoxy)silane,	tetrakis(trifluoroacetoxy)silane,	triacetoxysilane,
tris(trichloroacetoxy)silane,	tris(trifluoroacetoxy)silane,	methyltriacetoxysilane,
methyltris(trichloroacetoxy)silane,	methyltris(trifluoroacetoxy)silane,	phenyltriacetoxysilane,
phenyltris(trichloroacetoxy)silane,	phenyltris(trifluoroacetoxy)silane,	methyldiacetoxysilane,
methylbis(trichloroacetoxy)silane,	methylbis(trifluoroacetoxy)silane,	phenyldiacetoxysilane,

phenylbis(trichloroacetoxy)silane, phenylbis(trifluoroacetoxy)silane, dimethyldiacetoxysilane, dimethylbis(trichloroacetoxy)silane, dimethylbis(trifluoroacetoxy)silane, methylphenyldiacetoxysilane, methylphenylbis(trichloroacetoxy)silane, methylphenylbis(trifluoroacetoxy)silane, diphenyldiacetoxysilane, diphenylbis(trichloroacetoxy)silane, diphenylbis(trifluoroacetoxy)silane, methylacetoxysilane, methyl(trichloroacetoxy)silane, methyl(trifluoroacetoxy)silane, phenylacetoxysilane, phenyl(trichloroacetoxy)silane, phenyl(trifluoroacetoxy)silane, dimethylacetoxysilane, dimethyl(trichloroacetoxy)silane, dimethyl(trifluoroacetoxy)silane, diphenylacetoxysilane, diphenyl(trichloroacetoxy)silane, diphenyl(trifluoroacetoxy)silane, trimethylacetoxysilane, trimethyl(trichloroacetoxy)silane, trimethyl(trifluoroacetoxy)silane, triphenylacetoxysilane, triphenyl(trichloroacetoxy)silane, triphenyl(trifluoroacetoxy)silane, tetrachlorosilane, tetrabromosilane, tetrafluorosilane, trichlorosilane, tribromosilane, trifluorosilane, methyltrichlorosilane, methyltribromosilane, methyltrifluorosilane, phenyltrichlorosilane, phenyltribromosilane, phenyltrifluorosilane, methyldichlorosilane, methyldibromosilane, methyldifluorosilane, phenyldichlorosilane, phenyldibromosilane, phenyldifluorosilane, dimethyldichlorosilane, dimethyldibromosilane, dimethyldifluorosilane, methylphenyldichlorosilane, methylphenyldibromosilane, methylphenyldifluorosilane, diphenyldichlorosilane, diphenyldibromosilane, diphenyldifluorosilane, methylchlorosilane, methylbromosilane, methylfluorosilane, phenylchlorosilane, phenylbromosilane, phenylfluorosilane, dimethylchlorosilane, dimethylbromosilane, dimethylfluorosilane, diphenylchlorosilane, diphenylbromosilane, diphenylfluorosilane, trimethylchlorosilane, trimethylbromosilane, trimethylfluorosilane, triphenylchlorosilane, triphenylbromosilane and triphenylfluorosilane; or a

partial hydrolysis product and/or a dehydration-condensation product of any of the above-mentioned compounds (wherein when any one of these compounds exemplified in this item (1) is used as a binder compound, it is preferred that the binder compound is three-dimensionally cross-linked through siloxane linkages in the antireflection film).

Please amend the paragraph beginning at page 58, line 5 as follows:

As explained above, conventionally, when the silica content of an antireflection film is increased to improve the antireflection properties and strength, a problem arises in that the abrasion resistance of the antireflection film becomes lowered. However, the present invention solves this problem by adjusting the silica particle content of the antireflection film to 30 % by weight or more while maintaining the arithmetic mean roughness and the ~~silica~~ silicon atom content of the surface of the antireflection film within specific ranges.--